

**US Army Corps
of Engineers**

Omaha District



Region VIII

Remedial Action Report

**Broderick Wood Products
Superfund Site
Adams County, Colorado**

Operable Unit 1

prepared by
Marvin Taylor, P.E.
Engineering Division

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

**US Army Corps of Engineers
Omaha District
Omaha, Nebraska**

DTIC QUALITY INSPECTED 3

19991215 063

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 28 September 1995	3. REPORT TYPE AND DATES COVERED Final
4. TITLE AND SUBTITLE Remedial Actin Report, Broderick Wood Products, Superfund Site, Adams County, Colorado, Operable Unit 1			5. FUNDING NUMBERS
6. AUTHOR(S) Marvin Taylor, P.E.			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Corps of Engineers Omaha District, CENWO-ED 217 N. 17th St. Omaha, NE 68102			8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSORING / MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) The Broderick Wood Products (BWP) Superfund site is located in Adams County, Colorado. The site is owned by a trust-operated partnership known as the Broderick Investment Comany (BIC). This is an estate left by William Broderick being operated for the heirs by the First Interstate Bank of Denver and the Colorado National Bank of Denver. This Superfund site is a fund lead project, assigned by Interagency Agreement (IAG) to the USACE for remedial design (RD) and remedial action (RA). BWP Operable Unit 1 remediation was accomplished in two undertakings. The first was on-site wastewater treatment and incineration and the second was selected reclamation of the sludges.			
14. SUBJECT TERMS Broderick Wood Products Adams County, Colorado Superfund site			15. NUMBER OF PAGES 45 16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UL

Table of Contents

I.	Introduction	1
II.	Chronology of Events	3
III.	Performance Standards and Construction Quality Control	5
IV.	Construction Activities	6
V.	Final Inspection	9
VI.	Certification That Remedy	10
	is Operational and Functional	
VII.	Operation and Maintenance Plan	11
VIII.	Summary of Project Costs	12

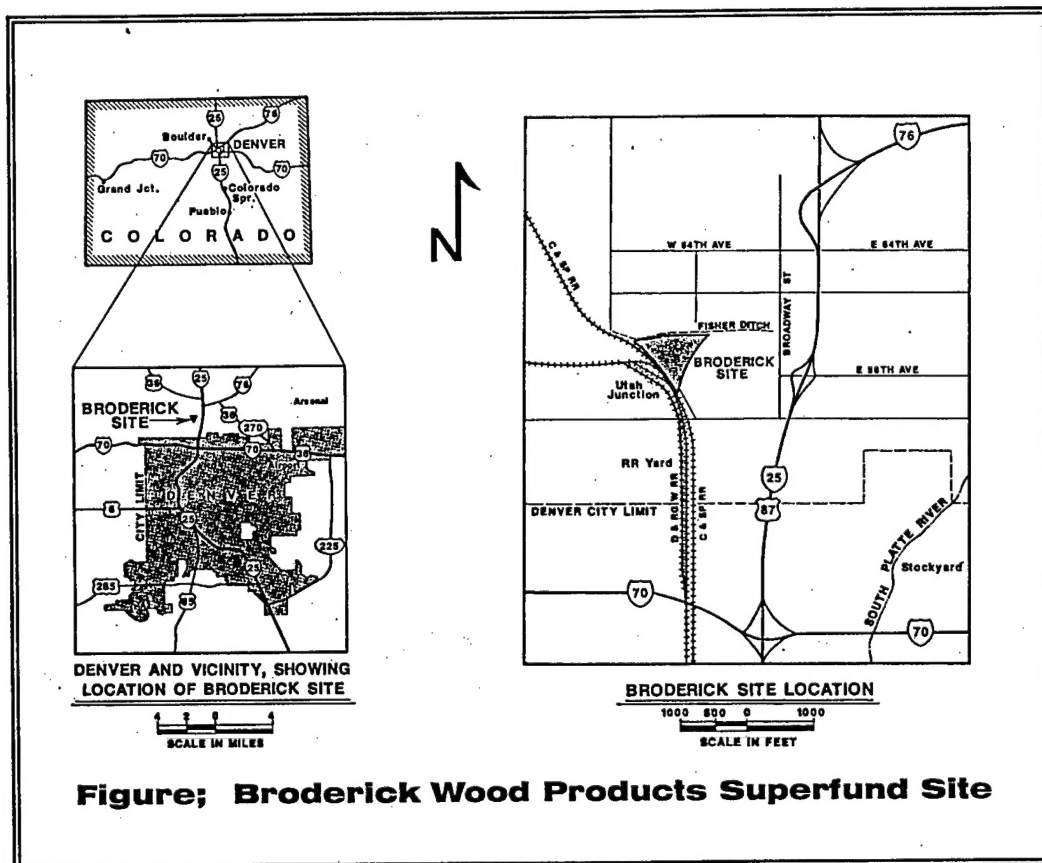
Appendices

Appendix A	ROD and Amended ROD Components
Appendix B	Performance Standards
Appendix C	RD/RA Contractors
Appendix D	Weekly Co-ordination Meetings
Appendix E	Remediation Costs

I. Introduction

The US Army Corps of Engineers, Omaha District, (USACE) prepared this Remedial Action Report (RAR). It was prepared in accordance with U.S. Environmental Protection Agency (EPA) guidance found in Publication 9355.039FS dated June 1992 and "Close out Procedures for National Priorities List Sites" draft dated June 20, 1995.

The Broderick Wood Products (BWP) Superfund site is located at 5800 Galapago Street, in unincorporated Adams County, Colorado 80216 immediately north of Denver, as shown in the Figure below. The site is owned by a trust-operated partnership known as the Broderick Investments Company (BIC). This is an estate left by William Broderick being operated for the heirs by the First Interstate Bank of Denver and the Colorado National Bank of Denver.



This Superfund site is a fund lead project, assigned by Interagency Agreement (IAG) to the USACE for Remedial Design (RD) and Remedial Action (RA). The ROD action items are in Appendix A. The names of the companies involved with this project are listed in Appendix C.

The BWP site RA is divided into two operable units; Operable Unit 1 (OU 1) is interim actions and source control, and final site remedy is Operable Unit 2 (OU 2). The RA in OU 2 will not be addressed in this Report.

BWP OU 1 remediation was accomplished in two undertakings. The first was the original Record of Decision (original ROD) which selected on-site wastewater treatment and incineration as the remedy. This RA was partially completed. The amended Record of Decision (amended ROD) selected reclamation of the sludges as the remedy. This RA was accomplished.

The execution of OU 1 has been a combined effort. The first action of each RA for OU 1 was accomplished by the site owners - BIC and their technical consultant, Remediation Technologies Inc. (ReTeC). BIC erected the perimeter fence as part of the original ROD. ReTeC placed the sludges into holding cells. The designs for both of the aforementioned RDs were accomplished by the Omaha District. The original ROD RD, wastewater treatment and incineration, was designed by consultants contracted by USACE and the amended ROD RD, reclamation, was designed by USACE personnel. Both RAs were contracted.

The purpose of OU 1 was to remove the source of contamination at the BWP site, this was accomplished. The original ROD selected remedy, wastewater treatment, was started and then terminated. The amended ROD selected remedy, reclamation, was completed. At the completion of the sludge recycling contract the source of contamination was removed from the site.

II. Chronology of Events

Original ROD (On-site incineration) issued	June 30, 1988
Remedial Design IAG issued to USACE Accepted	September 19, 1988 September 26, 1988
Right-of-Entry obtained by Federal Court Order	March 27, 1989
USACE awards Design contract for OU 1 to EA Engineering, Science & Technology	March 28, 1989
RA IAG issued to USACE Accepted	August 9, 1989 September 25, 1989
Wastewater Treatment RA awarded to OHM Remediation Services	October 13, 1989
Notice to Proceed issued	October 13, 1989
SARA mandate deadline	October 16, 1989
On-site incineration bid package placed on hold	February 1, 1990
Wastewater Treatment RA terminated	May 4, 1990
BIC submitted a petition to EPA Region VIII for reconsideration of the ROD	May 24, 1990
ReTeC places sludges in holding cells	<i>started</i> <i>completed</i> October 22, 1990 November 30, 1990
ReTeC Holding cell construction report issued	December 18, 1990
ReTeC submitted 60 % design package for reclamation	April 26, 1991
RD IAG extended	September 16, 1991
ROD Amendment (reclamation) issued	September 24, 1991

RD of the Amended ROD
assigned the Omaha District
accepted

December 4, 1991

December 10, 1991

Sole Source Commerce Business Daily
Publication Date

January 15, 1992

Plan-in-Hand survey on-site

April 13, 1992

Request for Proposal issued
to Allied-Signal, Inc.

April 17, 1992

Negotiations held in Omaha
negotiations completed

May 28, 1992

June 8, 1992

Sludge Reclamation awarded to
Allied-Signal Inc. with 7-7, Inc. as subcontractor

June 29, 1992

Wastewater Treatment RA Contract closed out

July 22, 1992

Notice to proceed Issued to Allied-Signal

July 24, 1992

On-site Substantial Completion

October 24, 1992

Final Inspection

November 10, 1992

Allied-Signal submitted Claim
for additional compensation

January 18, 1993

Changed Site Conditions Claim
certified by Allied-Signal

August 16, 1993

Claim for changed site conditions negotiated

November 10, 1993

Partial payment of modification made

January 11, 1994

Last heel from tank car cleaning incinerated

June 11, 1994

Final payment plus interest made

February 1, 1995

Reclamation RA contract completed

June 9, 1995

III. Performance Standards and Construction Quality Control

Performance standards were required in each RA contract of the original ROD as part of the general construction quality control requirements. The values from both the wastewater treatment and the on-site incineration are in Appendix B. The wastewater contractor had the necessary materials on-hand to test the treated water during the shake down phase of the water treatment facility. Additionally periodic testing was required during the wastewater treatment effort. This project was terminated and no testing was performed. Likewise, since the incineration package was never advertised nor awarded no stack, or emissions, or ash testing was performed.

The amended ROD selected off-site reclamation of the sludges. The sludge material from Broderick was blended into new creosote for use at wood treating facilities. The unusable sludge materials and project wastes were incinerated at the reclamation facility and the ash disposed in a permitted hazardous waste landfill.

No environmental criteria or testing were required in the amended ROD and thus none appeared in the construction contract. Normal construction monitoring and testing were performed during the project. These included air monitoring during the rail car loading operations.

IV. Construction Activities

The companies involved with the design and construction of both the original ROD and the Amended ROD are listed in Appendix C. USACE Omaha District is the sole Federal agency assigned to assist the EPA with OU 1.

EPA Region VIII issued the original ROD on June 30, 1988, but without concurrence from the State of Colorado. As stated in the ROD "The State of Colorado has been consulted on the selected remedy, and has not yet indicated whether or not it will concur on the remedy." Concurrence of the selected remedy by the State of Colorado came later by letter. EPA Region VIII assigned to the Omaha District the RD and RA administration of OU 1 for Broderick Wood Products. This Superfund project was in the first group of SARA mandated projects that required RA starts by October 16, 1989. The USACE awarded a professional services contract to EA Engineering with Jacobs Engineering as subcontractor. EA Engineering designed the wastewater treatment project, and Jacobs designed the incineration project. The projects were designed on parallel tracks to be one big project, or they could be awarded as a small wastewater treatment project followed by a larger incineration project. Both were prepared as low bid contracts. The wastewater treatment project was awarded to OHM Remediation Services under the Omaha District's pre-placed remediation contract as a negotiated work order. The award date was October 13, 1989, three days prior the SARA mandate.

OHM Remediation Services prepared the required project plans and work plans and designs during the winter of 1989-90. The USACE, EPA Region VIII, and the State of Colorado reviewed and approved the plans. In April 1990 OHM Remediation Services started work on site. Materials were shipped in and the water treatment plant was being erected. On May 4, 1990, upon direction from EPA Region VIII the contract was terminated for the convenience of the Government.

The advertisement of the on-site incineration package was placed on hold during the winter of 1989-90 which coincided with Colorado's "Better Air Campaign." On February 1, 1989 the incineration advertisement package was placed on long term hold pending the outcome of BIC's petition of reconsideration of the ROD.

Discussions during the winter of 1989-90 between BIC and EPA Region VIII resulted in BIC submitting a petition on May 24, 1990 for consideration of other remedies for the disposal of the sludges. This petition contained brief descriptions of several alternative remedies. The remedy selected consisted of reclamation of the site sludges at a facility which blends the waste with new materials for the production of new creosote. The wastes which can not be blended would be incinerated and the ash placed in a permitted hazardous waste landfill.

As part of selecting a new remedy, EPA required BIC "to remove the sludges from the impoundments for temporary storage." This was completed during the fall of 1990, under ReTeC's supervision. This action is documented in the report titled: "REMOVAL AND STORAGE OF MAIN AND SECONDARY IMPOUNDMENT SLUDGE; Prepared for: Broderick Wood Product Site, Denver, Colorado; Prepared on behalf of: Broderick Investment Company, Denver, Colorado; December 18, 1990. Prepared by Remediation Technologies (ReTeC)."

BIC's consultant ReTeC prepared a draft design (dated April 26, 1991) for a small project. This project was only to blend and mix the sludges on-site. It did not include a railroad spur, transportation of the mixture, nor the actual reclamation. The draft was submitted to the Government for review. The final design package was to be publicly advertised by the USACE for low bid and the on-site RA contract administered by the USACE. Through discussions with the EPA and BIC it was determined that BIC/ReTeC would not finish the design and the task would be assigned to the USACE, Omaha District.

On September 16, 1991, the design IAG was extended, and the design of the Amended ROD RA was formally assigned to the Omaha District by IAG amendment dated December 9, 1991.

An amended ROD was issued September 24, 1991. This amendment called for reclamation of the sludges as the selected remedy.

USACE, Omaha District using in-house forces designed a general requirements package for on-site blending and processing, and reclamation. The RA contract was negotiated and awarded to Allied-Signal Inc. (A-S) as called for in the ROD. Sole source procurement approval was necessary and was obtained from USACE, Headquarters.

The RA for sludge reclamation proceeded at a rapid pace. This is described in the weekly on-site construction co-ordination meetings' agenda and attendance lists which comprise Appendix D.

The railroad spur was the first item constructed on-site, while the Southern Pacific Railroad Company constructed their own spur on the adjoining right-of-way to meet the project spur. The mixing vessel was mobilized to the site, consisting of a semi-truck trailer sized box with augers arranged parallel to the long axis of the box. The augers were individually controlled as to direction of rotation. This allowed material to be thoroughly mixed and blended as necessary. Heat energy was introduced into the box. The atmosphere in the box was purged with nitrogen and processed through two successive chillers to eliminate any noxious vapors from escaping. A great deal of earthen materials were encountered in the sludges,

both organic and inorganic. The extra materials consisted of ground up vegetation, and soil like material from silt size to cobbles (football size). This required extra on-site equipment. Some of material solidified in the rail cars during transit to the reclamation facility. All sludges from the two cells were removed from the site.

LESSONS LEARNED

While some of the suggestions in the Request for Reconsideration submitted by BIC to EPA Region VIII were based on laboratory experiments, no thorough feasibility study was performed for any of the alternatives. Small scale experiments showed that the sludges would go into solution with a diluent such as virgin creosote if enough energy is input via stirring and heating. In the event that more formal traditional studies had been performed; perhaps the earthen materials ultimately found in the sludges (50%) would have been discovered and then managed. This, of course, would have required considerable time and effort.

One of the goals of amending the ROD was to lower the cost of the remediation for OU 1. The actual cost from reclamation was less than half the estimated cost of the original remedy of on-site incineration and wastewater treatment.

V. Final Inspection

The Final Inspection was held on 10 November 1992 with the following personnel participating:

Captain Gregory Stinner of the USACE, Omaha District, Rocky Mountain Area, Denver Resident Office.

Jerry Fulner of the USACE, Omaha District, Rocky Mountain Area, Denver Resident Office.

Ralph Hagman of 7-7, Inc.

Carl Waddel of 7-7, Inc.

The following items were noted as deficiencies to be completed:

1. Completion of off-site reclamation of sludge and oil.
2. Completion of shipment and disposal of 396 one cubic yard boxes remaining on site.

The above items were completed:

1. November 23, 1992
2. March 28, 1993

VI. Certification That Remedy is Operational and Functional

Original ROD

The contract to treat the wastewater was terminated while the contractor was erecting the treatment facility.

The contract to incinerate the sludges was not advertised.

Amended ROD

The amended ROD remedy, that of reclamation of the sludges, was fully accomplished. The source of contamination was removed from the site.

All sludges in the two holding cells were blended and processed on-site, and transported to Allied-Signal's Fairfield, Alabama plant per the requirements set forth in the plans and specifications DACW45-92-C-0082 awarded to Allied-Signal on June 29, 1992.

VII. Operation and Maintenance Plan

Original ROD

No operation and maintenance plan was necessary since the RA would have treated, incinerated and removed residual ash from the site. The original overall plan called for the treated water to be stored on site until needed for incineration, and there was a very small O & M plan to maintain the integrity of the temporary storage vessel. But the water treatment contract was terminated before any water was treated.

Amended ROD

No operation and maintenance plan was necessary since the RA processed the sludges with a diluent and then the mixture was transported to Allied-Signal's facility at Fairfield, Alabama and reclaimed there or incinerated and the ash disposed in a permitted landfill.

VIII. Summary of Project Costs

A summary of final project costs versus the estimated ROD costs is provided in Appendix E. Both Remedial Action contracts experienced two administrative modifications. The original ROD RA, wastewater treatment, cost about two-thirds of the original contract award amount. The project was terminated after all the plans were completed, all the materials had been delivered to the site, and the facility was partially erected. The only items left undone were treat and test the water. In a termination for the convenience of Government, the Government pays the costs incurred by the contractor. The unpaid costs amounted to some labor to operate the facility and some water tests. All the costs were fully documented and audited.

The amended ROD RA, reclamation of the sludges, cost about 45% more than the original contract award amount. There was more foreign earthen material mixed in the sludge than anyone anticipated. Extensive sampling, testing, analysis, and therefore time and expense would have been required to try to quantify any amount of foreign material in the sludge. The problem did not come to light until almost all the sludge had been blended and was off-site. The increase in cost was largely due to dealing with the actual foreign material. Interest on the negotiated amount added to the cost.

Appendices

Appendix A	. . . . .	ROD and Amended ROD Components
Appendix B	. . . . .	Performance Standards
Appendix C	. . . . .	RD/RA Contractors
Appendix D	. . . . .	Weekly Co-ordination Meetings
Appendix E	. . . . .	Remediation Costs

Record of Decision (June 30, 1988)

These are the major components of the selected remedy.

[quoting from the ROD]

ROD Action No. 1

Site Access - "Construct a security fence around the entire site; the fence will be six feet high with chain link, topped with three strands of barbed wire. Install 20 warning signs around the site."

ROD Action No. 2. a.

Impoundment - "Excavate and incinerate on-site the sludge and
Contents oil in the main and secondary impoundments; ash residues will be disposed in a hazardous waste landfill."

ROD Action No. 2. b.

- "Treat contaminated impoundment waste water with a carbon adsorption treatment system; the treated water will either be used as incineration quench water or disposed of through on-site evapo-transpiration."

ROD Action No. 3.

Soils Beneath - "Excavate the visibly contaminated soils
Impoundments beneath the impoundments; these soils will either be incinerated on-site (if the volume is less than 2500 yd³) or stored in a waste pile for further studies (if the volume is greater than 2500 yd³)."

ROD Action No. 4. a.

Facility Area - "Filter any contaminated water in the facility area to remove asbestos fibers, followed by treatment of the water in a carbon adsorption system; the treated water will either be used as incineration quench water or disposed of through on-site evapo-transpiration."

ROD Action No. 4. b.

- "No action at this time for remediating either the buildings or vessels in the facilities area. EPA has concluded that not enough information is available to support selection of a remedy at this time. Remedies to address this problem will be developed in the early part of the Phase III RI/FS."

ROD Action No. 5.

- Contaminated - "No action at this time; not enough information
Surface Soils is available at this time to support selection of a remedy. Remedies to address this concern will be developed during future, continuing RI/FS studies at the site."

ROD Action No. 6.

- Monitoring of - "A variety of techniques will be used to
Remedies monitor the effectiveness of the remedies; these will include stack testing for the incinerator, testing of ash residues, sampling of water treatment effluent, and monitoring for the ground water contaminant plume during continuing RI/FS activities."

Options to be decided during the RD/RA stages:

Option/Remedy - Applies to ROD Actions No. 2.a. and 4.

- "If the option to dispose of treated water through use as incineration quench water becomes infeasible, EPA will consider the evapo-transpiration disposal method. Any decision to implement the evapo-transpiration disposal method would be preceded by a pilot test of the treatment process. If determined to be non-hazardous, the water could be treated and disposed of on-site."

Option/Remedy - Applies to ROD Action 3

- "EPA will decide whether to incinerate or stockpile visibly contaminated soils after the actual volume of these soils is determined. A volume less than 2500 yd³ will result in a decision to incinerate, will a volume greater than 2500 yd³ will result in temporary storage. A decision to store the soils temporarily will mean that remedies in addition to incineration will be evaluated for these soils during the continuing RI/FS process."

Amended ROD Components (September 24, 1991)

"The major components of the selected remedy include:"

[quoting from the ROD]

ROD Amendment Action No. 1.

- "removal and preparation of liquid and solid sludges from temporary storage cells within the impoundments area:"

ROD Amendment Action No. 2.

- "transportation of the sludges and oil collected from the sludges to a permitted recycling facility;"

ROD Amendment Action No. 3.

- "reclamation of creosote for use at other wood treating facilities; and"

ROD Amendment Action No. 4.

- "treatment via incineration and disposal of residues by the recycler in a permitted landfill."

WASTEWATER TREATMENT FACILITY

The performance standards required in the RA contract "meet current and/or proposed MCLs" even though the quench water will not be used for human consumption.

<u>Chemical Group</u>	<u>Parameters</u>	<u>Maximum Concentration</u>	<u>Units</u>
Volatile Organics	Benzene	3	µg/l
	Chloroform	5	µg/l
	Ethylbenzene	5	µg/l
	Styrene	5	µg/l
	Toluene	5	µg/l
	Xylene	5	µg/l
Semi-Volatile Organics	Acenaphthene	30	µg/l
	Acenaphthylene	30	µg/l
	Anthracene	30	µg/l
	Benzo(a)anthracene	30	µg/l
	Benzo(b)fluoranthene	30	µg/l
	Chrysene	30	µg/l
	Fluoranthene	30	µg/l
	Naphthalene	30	µg/l
	Pyrene	30	µg/l
	Phenanthrene	30	µg/l
	2-Methylnaphthalene	30	µg/l
	Pentachlorophenol	150	µg/l
	Dibenzofuran	30	µg/l

"Facility basement water to be filtered to remove asbestos fibers to the level shall be less than 7.1 million asbestos fibers (> 10 µm in length) per liter."

ON-SITE INCINERATION

All Federal and State of Colorado ARARs were to be followed. Incinerator emissions were to achieve a Destruction and Removal Efficiency (DRE) of at least 99.9999 percent for each principal organic hazardous constituent.

The residual ash would have been tested using the TCLP protocol for lead leachate, for disposal purposes.

ORIGINAL RECORD OF DECISION

Design of original ROD remedy:
under contract number DACW45-88-D-0009; delivery order 5017.

Wastewater Treatment Facility
EA Engineering, Science, and Technology, Inc.
Great Plains Regional Office
221 Oakcreek Drive
Lincoln, Nebraska 68528

Subcontractor for the Incineration Package
Jacobs Engineering Group Inc.
Albuquerque Operations
5301 Central N.E. Suite 1600
Albuquerque, New Mexico 87108

Remedial Action of original ROD: Wastewater Treatment
under contract number DACW45-89-D-0506; Delivery Order 5002

OHM Remediation Services
16406 U.S. Route 224 East
Findlay, Ohio
45839-0551

AMENDED RECORD OF DECISION

Place sludges into holding cells: Site Owners Technical Consultant

Remediation Technologies, Inc
23 Old Town Square, Suite 250
Fort Collins, CO 80524

Designer of on-site blending and processing for Site Owner:

Remediation Technologies, Inc
3040 William Pitt Way
Pittsburgh, PA 15238

Remedial Action of Amended ROD:

proposal number: DACW45-92-R-0030, April 1992
construction number: DACW45-92-C-0082

Allied-Signal Inc. Prime contractor
101 Columbia Road
Morristown, NJ 07960

7-7, Inc. On-site subcontractor
607 Freedlander Road
Wooster, OH 44691

Appendix D

Weekly Co-ordination Meetings

appendix consists of Agendas and attendance list.

Dates of meetings:

September 2, 1992
September 9-14, 1992
September 16, 1992
September 23, 1992
September 30, 1992
October 7, 1992
October 14, 1992
October 21, 1992
November 4, 1992

WEEKLY COORDINATION MEETING

WED. 2 SEP 92

ACTIVITIES PLANNED FOR NEXT TWO (2) WEEKS

GENERAL

FINISH RAIL SPUR, SITE PREP, EQUIPMENT STAGING AND BEGIN TAR HARVESTING AND PROCESSING

WED. 2 SEP 92

- WORK ON RAIL DRIP PAN, RAIL LIFT & CULVERT.
- RECEIVE FRAO TANK & SHOWER TANKS
- INSTALL RAIL FENCE GATE & MONITORING WELL PROTECTION
- CONTINUE ON ELECTRICAL SERVICE
- "BOBCAT" ARRIVES

THUR 3 SEP 92

- EQUIPMENT BEGINS TO ARRIVE
- SPOT & SET-UP EQUIPMENT IN PROCESSING AREA
- EXCAVATOR ARRIVES.
- COMPLETE RAIL SPUR.
- FINAL INSPECTION OF RAIL

FRI 4 SEPT. 92

- COMPLETE ELECTRICAL SERVICE
- FINAL INSPECTION OF ELECTRICAL SERVICE
- ~~• SPOT BOBCAT OVER FUEL TANK IN EQUIP. AREA~~
- SPOT NITROGEN TRAILER
- RECEIVE 1 FULL & 4 EMPTY RAIL CARS
- RECEIVE 20 ONE CUBIC YARD WASTE BOXES FOR COVER & LINER DISPOSAL
- REMOVE SECTION OF SNOW FENCE
- BEGIN TO INVENTORY, CLEAN, LABEL & LOAD DRUMS
- REMOVE LIQUID FROM CELL COVERS TO EMPTY RAIL CAR.
- BEGIN TO REMOVE CELL COVERS

TUE 8 SEP 92

- PREPARATORY INSPECTION OF PROCESSING AREA & EQUIP.
- "TOOL BOX" SAFETY MEETING
- BEGIN INITIAL OPERATION OF PROCESSING

WED 9 SEP 92

- CONTINUE PROCESSING
- WORK ON HAIL ROAD CULVERT

2 SEPTEMBER 1992.

BRODERICK WOOD PRODUCTS WEEKLY CONSTRUCTION MEETING

<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>
CPT GREG STINNER	COE	296-9663
G. J. Fuller	COE	" "
Rich McRae	COE	286-1910
Larry Bruskin	Colo. Dept. Health	331-4422
Armando Saenz	EPA	296-1531
Ralph Hagman	7-7	296-9705

WEEKLY COORDINATION MEETING

WED 9 SEP 92

ACTIVITIES PLANNED FOR NEXT (2) WEEKS

GENERAL : PHYSICAL SITE PREP IS ESSENTIALLY COMPLETE.
NEXT COUPLE OF DAYS, ACTIVITY IS BEING
FOCUSED ON FINAL SET-UP AND CHECK OUT
OF PROCESSING EQUIPMENT.
PRIOR TO PROCESSING ANOTHER REVIEW
OF THE SAFETY DATA SHEETS WILL BE DISCUSSED

ACTIVITIES COMPLETED SINCE LAST MEETING

- RAIL SPUR COMPLETED AND APPROVED BY SOUTHERN PACIFIC RR.
- ONE FULL & FOUR EMPTY RAIL CARS DELIVERED
- FENCE & RAIL GATE COMPLETED AND PROTECTION INSTALL AROUND MONITORING WELL
- EQUIPMENT ARRIVED AND BEING SET-UP. ELECTRICAL SERVICE CONTINUES TO BE A PROBLEM
- CIH IS ON SITE
- 72 DRUMS WERE INSPECTED, PLACED ON PALLETS AND SHIPPED FOR OFF SITE PROCESSING - WITH PROPER MANIFEST.

OLD ISSUES

- STATUS OF EMPTY RAIL CARS.
BRENT DEFEO OF ALLIED SAID ALL CARS BELONG TO ALLIED AND ARE USED FOR ~~SAME~~ SAME MATERIAL AND USE.
- SECURITY GATES WILL REMAIN CLOSED ONCE PROCESSING BEGINS IN A COUPLE OF DAYS.
- ONCE PROCESSING BEGINS ~~IT WILL BE~~ THE CYCLE WILL BE REPEAT

VISTLEN SITE

9/14

Missouri River Division of
U.S. Army Corps

HARVEY ROBINSON US ARMY COE COLO
SP69

DICK Blankenfeld " " "

Tim Fry " " Omaha

Roy HENSLEY " " Omaha

Joe Brunson " " Col Spgs.

Bob Stapleford " " Col Spgs

WEEKLY COORDINATION MEETING
WED. 16 SEP. 92

ACTIVITIES PLANNED FOR NEXT (2) WEEKS

GENERAL:

- Essentially the plan is to continue processing material from the two containment ponds. The discharge end of the Liquifier will be modified with the installation of a settling box to accomodate the unanticipated excessive amount of debris (rocks, etc.) found in the large pond.
- In regard to schedule, the crew is not scheduled for processing on Sept. 18, 19, and 20th as the crew is scheduled for weekend leave. Processing will resume mid-day Monday the 21st and continue 12 hours a day, 7 days a week.
- The fence company will return on Thursday , Sept. 17, to install the grounding rods and drop bars.
- The rail contractor will return Friday, Sept. 18, to install the permanent bumper.

ACTIVITIES COMPLETED SINCE LAST MEETING

- We met with the neighbor. The E.P.A. is addressing his concerns. As a result of the meeting, we have installed additional surface stone in the processing area and are in the process of implementing a road watering dust control procedure.
- Two rail cars have been loaded and switched out.
- Surface water from the large cell has been pumped off to a rail car and the cover has been removed and boxed.
- The cover of the small pond has been rolled back to access the more liquid material for pumping and processing.
- Processing has been hampered by the rocks plugging the discharge hose.
- The air monitoring program has been reviewed and modified by our C.I.H.
- Locks have been installed on the rail spur gate and the entrance gate has been repaired.
- Site was visited by Missouri group of Corps. of Engineers.
- Weekly "tool box" meeting was held on Tuesday, Sept. 15th.
- The 1200 amp G.F.I. disconnect, required by the Colorado State Electrical Inspector, was air freighted in and installed.

with put covers
- custom (or better)
Access to site

SIGN IN SHEET

16-SEPT 92

Weekly Coordination Meeting

<u>SIGN</u>	<u>PRINT</u>	<u>NOT</u>
Ralph Hayman	RALPH HAYMAN	7-7
Dave Pagan	DAVE PAGAN	7-7
Greg Stinner	GREG STINNER	COE
Larry Brustin	Larry Brustin	CDH
Dan Schipper	DAN SCHIPPER	CDH
George Niedermeyer	George NIEDERMEYER	7-7
ARMANDO SAENZ	Armando Saenz	EPA
G. J. Fulner	G. J. FULNER	COE
Tim Randolph	Tim Randolph	7-7

WEEKLY COORDINATION MEETING
WEDNESDAY 23 SEP 92

ACTIVITIES PLANNED FOR NEXT (2) WEEKS:

- General:
- Crew returned from weekend leave late Monday morning and are scheduled to work 12 hour per day, 7 days a week, for the next (3) weeks.
 - In process of installing settling box in order to address rock processing problem. Work is expected to be completed by late 9/23, and is proceeding subject to final approval by Corp.
 - Processing of more liquid material is continuing while rock issue in more solid pond is being addressed.
 - Additional stone will be installed in rail loading area to cover native soil and control dust.

ACTIVITIES COMPLETED SINCE LAST MEETING:

- Four more rail cars have been loaded for a total of (60).
- Rail bumper has been installed.
- Fence grounding has been installed and drop bar alternative approved.
- Repaired pump on "VAC" truck.
- Dust control (road watering) has been implemented.
- Excavated soil from gravity box installation was stock-piled on plastic and will be covered with plastic for dust control purposes. Soil will be re-installed in hole when box is removed.

Weekly Progress Coordination Meeting
WED SEPT 23, 1992

SIGN-IN-SHEET

<u>SIGN</u>	<u>PRINT</u>	<u>REP</u>
Ralph Haymen	RALPH HAGMAN	7-7
Gary Stinner	GARY STINNER	COE
Dave Pagani	DAVE PAGANI	7-7
Armando Saenz	ARMANDO SAENZ	EPA
Larry Bruskin	LARRY BRUSKIN	CDH
G.J. Fulner		COE
RICH MCRAE		COE
Tim Randolph	Tim Randolph	7-7

WEEKLY COORDINATION MEETING
WEDNESDAY, 30-SEP-92

GENERAL:

- ✓- Continue to process material from larger pit.
- ✓- Modifying screen frame-work for gravity settling box to isolate rocks from pump.
- ✓- Gearing up for 24-hour-per-day operation. Also will run one shift the weekend of October 9, 10, & 11 when the crew was scheduled for leave.
- Air monitoring. *TIP - STACK IN COL 10 LBS.*
COVER CORP. WITH RESULTS
- 40 - 1100 1100 0.7601.

PROGRESS SINCE LAST MEETING:

- Loaded 5 more rail cars for a total of 11 as of 9-29-92.
- Installed gravity settling box.
- Met with Corps & E.P.A. to review proposal to deal with rock issue.
- Installed (50+ tons) more stone cover in rail loading area.
- Provided rail car detail to Corps for E.P.A.

ISSUES:

- E.P.A. approved method to handle rock residue. (*TABLE*)
- Opinion on use of magnesium chloride for nuisance road dust.
- Copy of soil test reports from E.P.A.
□ CORP. HAS. WILL PROVIDE TO US

ANALYSIS
→ WATER. Referred for ANAL. CARDS
(TIN SAID NOT DETECT)
- H. FRED REQUIREMENT

10. GALL
→ SAMPLES TEST ALCOH
□ BILENT - TO
9.30.00 RESULTS
TIME TO COUP.

Broderick Weekly Coord Meeting 30 Sept 92
Wed

- Marvin Taylor	COE, Omaha	402-342-0051
- GREG STINNER	COE, DENVER	296-8663
- STEVE GRAF	COE, Omaha	402-331-4158
- ARMANDO SAENZ	EPA	293-1532
- RALPH HAGEMAN	7-7	
Steve Pajani	7-7	
Larry Bruskin	Colo. Dept Health	692-3384
G. J. Fulmer	COE	
R. McRae	COE	
J. Catoldo	COE	(402) 342-9423
Tim Randolph	7-7	(303) - 296-9705

WEEKLY COORDINATION MEETING
WEDNESDAY, & OCT-92

7

*Continuing to process material from larger pit. Good progress is being made. Large pit approximately 80% complete. Expect it to essentially empty by Friday at which time efforts will be switched to smaller pit.

Removal of liner from larger pit will be used as fill-in work or in case of mechanical breakdown.

*Part of crew is going home on leave Friday, Saturday, and Sunday (October 9, 10, and 11). We will continue to run one shift on these days.

*Unit cost per drum to dispose of rocks. (See separate estimate.)

*Fixed costs to address rock issue.

*Equipment modifications and breakdowns.

*Activity progress chart.

PROGRESS SINCE LAST MEETING

*Applied magnesium chloride for control of nuisance road dust. (Seems to be working well!)

*Ordered and received 50 drums and 12 pallets for stones.

*Loaded 6 more rail cars for a total of 17 as of 7-Oct-92.

*Installed "Digester Pump" in gravity box to replace old pump and screen system which failed. New pump is working well and we are optimistic that we will soon be back on schedule.

*Received pump and funnel drum loader from shop in Wooster.

*Received 35 hazardous waste boxes.

*2nd shift was added Thursday, 1-Oct-91, but full benefit is yet to be realized due to mechanical and pump problems.

*Replaced several major parts on van truck "drum" pump.

Weekly Coordination Meeting
Wednesday, 7-Oct-92

ISSUES

- *Pit sample test results -- Allied to provide copy of analysis.
- *E. P. A. soil test reports -- Review of documents do not indicate any contamination in alleged areas outside of pits.
- *Determination of disposal or stockpiling of rock residue.

Handwritten: L. 10-17 SC-81

SIGN IN SHEET

WEEKLY COORDINATION MTC

<u>NAME (PRINT)</u>	<u>SIGN</u>	<u>CO</u>
RALPH HAGMAN	<i>Ralph Hagman</i>	7-7
Tim Randolph	<i>Tim Randolph</i>	7-7
Brent DeFeo	<i>Brent DeFeo</i>	Allied
G. S. TOLNER	<i>G. S. Tolner</i>	COE
GREG STINNER	<i>Greg Stinner</i>	COE
John Heger	<i>John Heger</i>	COE
ARMANDO SAENZ	<i>A S</i>	EPA

WEEKLY COORDINATION MEETING
WEDNESDAY, 14-OCT-92

GENERAL:

The liquifier has clogged with stones to the point it won't discharge and has been down for clean-out and repair of an auger sheer pin since Monday afternoon, October 5th.

Equipment has been rented to expedite the cleaning process and is expected to be on site today.

Hopefully, cleaning and repairs will be completed in the next few days, and we expect to be back in operation by Friday or Monday, October 16th or October 19th, at which time we plan to process 2 rail cars a day for 7 days in order to complete the estimated 14 remaining cars.

In the meantime we are working on cutting and boxing up trash.

PROGRESS SINCE LAST MEETING:

- Loaded 5 more railcars for a total of 22 as of October 14th.
- Drummed 45 drums of stone from "gravity box".

ISSUES:

- Will we be compensated for additional COST for the additional stone issue?
- Will we be granted for additional TIME for the stone issue?
- Who will make the decisions?
- When will decisions be made?

Weekly Coordination Meeting: 14 OCT 92

SIGN-IN SHEET.

<u>NAME</u>	<u>REP</u>
RALPH HAGMAN	7-7
RICH McRAE	COE
GREY STINNER	LOE
Jim Randolph	7-7
David Hagan	7-7 inc.
Larry Bruckin	CDH

WEEKLY COORDINATION MEETING
WEDNESDAY, 21-OCT-92

GENERAL:

- Continuing to process material from pit #2.
- The liquifier sheared another pin and is beginning to plug up with stone again. We plan to run it until it plugs up completely - or we finish - whichever comes first.
- 30 cars filled to date, 27 shipped out.
- Estimate of 36 - 37 cars total still looks good.
- Barring any additional breakdowns - plugging up of liquifier with stones or weather problems - we anticipate processing of material from pits to be completed by Saturday, October 24th.
- After processing is complete we will cut up and remove liners and begin de-con and de-mob.

PROGRESS SINCE LAST MEETING:

- Loaded 8 more rail cars for a total of 30. 27 have been shipped off site.
- Liquifier was cleaned out and repaired and operations resumed Friday morning, October 16th.
- Most of first shift Monday, October 19th, was lost as a result of a heater breakdown.
- Requested information from Allied-Signal regarding diluent and bio-remediation (still waiting for them to respond.).
- Filled 87 drums with stone so far.
 - Gravity box needs to be cleaned out again. Also, liquifier is plugging up with stones again. In addition, the vac truck has 4,000 gallons of stone in it and we have one roll-off (25 cu yd) full of stone.
 - Estimate:

80 Drums in vac truck
50 Drums in gravity box NOW
50 Drums in gravity box LATER
100 Drums in 2nd roll-off
50 Drums in liquifier
<u>330 DRUMS TOTAL</u>
- We have 11 drums of miscellaneous solids.
- We have 32 each 1 cu yd hazard waste boxes filled.
- Processed third invoice based on percentage of rail cars complete. 67% complete to date. We may never achieve 100% if total is based on proposed 40 cars.

Weekly Coordination Meeting
Wednesday, 21-Oct-92

ISSUES:

- Stone / Drum issue still needs to be resolved.
- Allied-Signal to provide copy of test results run on sample provided by Corps.
- Allied-Signal to advise on diluent makeup regarding bio-remediation.

Weekly Coordination Meeting

WED. 21-OCT.-92

SIGN. IN SHEET

<u>NAME</u>	<u>CO.</u>
RALPH HAGMAN	7-7
GREG STINNER	COE
Tim Randolph	COE 7-7
RICH McRAE	COE
Larry Bruskin	CDH
ARMANDO SAENZ	EPA
G.I. Fulner	COE

MY COPY

WEEKLY PROGRESS COORDINATION MEETING
WEDNESDAY, 04-NOV-92

GENERAL:

- Work is continuing on liner removal, clean up, de-mob, and de-con. The recent snow slowed up the liner removal and clean-up of soil around ponds. Effort was re-directed to drumming stone from roll-off boxes, staging of boxes, and de-mob and de-con of equipment.

- 3 more crew members arrived today. On-site activity is expected to be complete Wednesday, 11-Nov-92.

ON-SITE ACTIVITIES REMAINING:

- Finish drumming material from boxes.

390 Drums to Date
130 Estimated Balance
520 Sub-Total
Less Credit for Liquifier Clean-Out
Estimated Total
- Palletize, band, label, and transport drums to building #9.
- Remove gravity settling box and fill depression with original material.
- Finish removing and boxing liners.
- Stage and protect 1 cu yd boxes from weather. Also develop shipping schedule and detailed procedure.
- Clean up soil-droppings around pond.
- De-con and de-mob equipment.
- Remove 7-7 signs.
- Ship out 5 remaining rail cars.
- Turn over keys to gates (rail and drive).
- Strip out electrical service.

PROGRESS SINCE LAST MEETING:

- Shipped (24) one cubic yard boxes to Allied in Birmingham.
- (214) one cubic yard boxes stored under lean-to.
- 35 rail cars have been shipped off site with approximately one-half of car 36 to be shipped next week. One car was returned because it was overweight. 2000 gallons were transferred to car 36.

Weekly Progress Coordination Meeting
Wednesday, 04-Nov-92

PROGRESS SINCE LASTE MEETING: (Continued)

- Many pieces of equipment including the liquifier were de-coned and returned.

ISSUES:

- Box Removal Schedule & Procedure
- Status of Stone Issue (Time / Cost Proposal)
- Rail Car - Unit Costs
- Rail Car Weights
- Liquifier Damage
- Punch List / Walk Thru

SIGN-IN SHEET

WEEKLY PROGRESS COORDINATION MEETING
4 NOV. 92

RALPH HASMAN

7-7

Armando Scanz

EPA

GREG STINNER

COE

Larry Bruskin

CDH

CARL WAODELL

7-7

Appendix E

Remediation Costs

<u>ROD Estimate</u>	<u>Element</u>	<u>Actual Cost</u>
---------------------	----------------	--------------------

Original Record of Decision, On-site Wastewater Treatment

	Treat Wastewater	
\$29,000	Lagoon water	
\$10,400	Facility / Tank water	
<hr/>		
\$39,400	Total Wastewater Treatment	\$299,577
		<hr/>
	Total Cost of Wastewater Treatment after Termination	\$195,157

Amended Record of Decision, Off-site Reclamation of Sludges

\$2,191,000	Sitework & Reclamation	\$3,128,048
	Changed Site Conditions modification	\$1,419,866
		<hr/>
	Total Cost for Reclamation	\$4,547,914
<hr/>		<hr/>
\$2,230,400	Grand Total - Both Remedial Actions for Operable Unit 1	\$4,743,071